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GALIUM ROURKEI (RUBIACEAE): A NEW SPECIES FROM THE SOUTH WESTERN CAPE

CH. PUFF

(Institute of Botany, University of Vienna, Rennweg 14, A–1030 Vienna, Austria)

ABSTRACT

Galium rourkei, a new species from the south western Cape, is described. Its affinities to the two Cape endemic species *G. subvillosum* and *G. mucroniferum* are discussed, and the isolated position of this group among the southern African *Galium* species is pointed out.

UITTREKSEL

GALIUM ROURKEI (RUBIACEAE): 'N NUWE SOORT VANAF DIE SUID-WESTELIKE-KAAP

Galium rourkei, 'n nuwe soort vanaf die suidwestelike-Kaap, word beskryf. Dié soort se affiniteite met die twee Kaapse endemiese soorte *G. subvillosum* en *G. mucroniferum* word bespreek en die geïsoleerde posisie van dié groep tussen die endemiese soorte van *Galium* van suidelike Afrika word aangetoon.

Key words: *Galium*, sp. nov., Rubiaceae, south western Cape.

Dr. John Rourke has kindly drawn my attention to an apparently very rare and as yet undescribed *Galium* species from the Kogelberg Forest Reserve in the south western Cape.

Galium rourkei Puff, sp. nov. similis *G. subvillosi* Sond. sed cymis 2-floris et foliis stipulisque foliaceis minoribus 4–5-natim verticillatis differt; affinis *G. mucroniferi* Sond. sed foliis oblanceolatis vel spathulatis multo latioribus facile distinguenda.

Herba perennis, prostrata, ramosissima. *Caules* graciles, ± quadrangulares, c. 100–200 mm longi. *Folia* et *stipulae* foliaceae 4–5-natim (rarissime 6-natim) verticillata, 5–7 mm longa, (2)2,5–5 mm lata, oblanceolata vel spathulata, pilosa, apicibus cuspidatis-mucronatis. *Cymae* 2-florae, pedunculi 1,5–5 mm longi, pedicelli 1,5–3 mm longi sub anthesi, postfloraliter usque ad 6 mm elongati, divaricati. *Corolla* cremeo-alba, rotata, (2,5)3–3,5(4) mm diam., lobi 4, ± ovati. *Fructus* niger, pilis albis obtectus; mericarpium unum saepe abortum.

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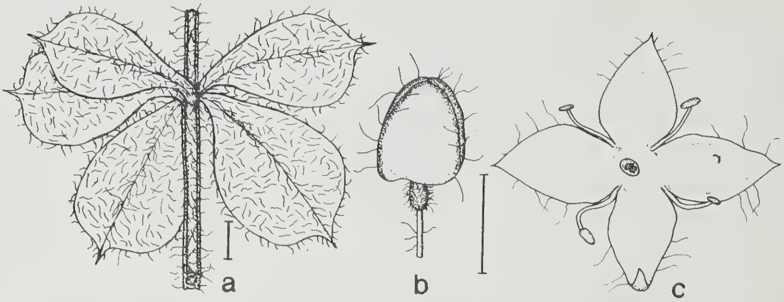

Fig. 1.
Galium rourkei. a, a node from the midstem region: 5 leaves in a whorl; b, bud; c, flower from above. Camera lucida drawings from the type collection; the bar represents 1 mm.

Type: South Africa, Cape Province—3418 (Simonstown): Kogelberg Forest Reserve, Kuduberg (-BD), c. 830 m, 17.12.1981, *Rourke 1765* (NBG, holo.; WU, iso).

Perennial. *Stems* ± much-branched, delicate, ± prostrate, c. 100–200 mm long and c. 0,5–1 mm in diam., ± distinctly 4-angled, at least younger parts with curved or straight white hairs on the angles, c. 0,4–0,7 mm long. Longest internodes c. 8–12(17) mm. *Middle cauline leaves* (Fig. 1a) in whorls of 4–5(-6), 1-nerved, 5–7 × (2)2,5–5 mm, oblanceolate to spathulate, with a distinct, rigid point at the apex, up to 1 mm long; with straight or curved hairs, c. 0,3–0,6 mm long on the upper and lower surface and margins; margins straight. *Synflorescences* much-reduced; partial inflorescences 2-flowered; peduncles 1,5–5 mm long, hairy; pedicels filiform, hairy, 1,5–3 mm at anthesis, to 6 mm and divaricate in fruit, only rarely subtended by lanceolate bracts, c. 1,5 × 0,5 mm, *Flowers* (Fig. 1c) strongly protandrous, 4-merous; corolla (2,5)3–3,5(4) mm in diam., rotate, creamy-white; lobes ± ovate, longer than wide, acute, with a few white, straight or curved hairs on the margins; stamens c. 1–1,5 mm long, filaments filiform, anthers brownish, ± ellipsoidal; styles very short, 0,5 mm or less, stigma ± capitate. *Buds* (Fig. 1b) ± ovoidal. *Fruits* dry, blackish, covered with white spreading hairs, c. 0,3–0,5 mm long; mericarps ± globose, each c. 1,5–2 mm in diam.; often only one mericarp developed.

Average pollen diameter: 27,63 μm.

Habitat: In permanent shade under damp rock cliffs, in south-facing situation. Growing in association with mosses and *Hymenophyllum* (notes from the type collection).

Although only known from the type collection, I have no doubt that *G. rourkei* is a "good" new species. It is allied to both *G. subvillosum* and *G. mucroniferum*, primarily on account of the similar, reduced inflorescences (3-or 2-flowered partial inflorescences) and flowers with stamens (filaments) almost as long as the corolla lobes. Also similar habitat conditions (sheltered, cool, moist) and corresponding average pollen diameters, larger than those of other Cape species of *Galium* (except for *G. undulatum*, an unlikely ally which markedly differs in floral and inflorescence structure), suggest an affinity. The large average pollen diameter may, furthermore, indicate poly-(?tetra)ploidy, which has been documented for both *G. subvillosum* and *G. mucroniferum* (Puff, 1978).

G. rourkei differs from both species in having its leaves arranged in whorls of 4 or 5 (6 leaves per whorl are the exception), shorter and broader leaves (leaf size and shape of some forms of *G. subvillosum* may ± overlap with those of *G. rourkei*, but the former has always 3- rather than 2-flowered partial inflorescences), much more delicate stems and usually shorter internodes.

It is noteworthy that this group of three Cape species seems quite isolated and does not appear to have any close allies in either the Cape or anywhere else in southern Africa, much in contrast to, for example, the *G. capense* group (*G. capense* and the allied Cape species *G. bredasdorpense*,[1] *G. monticolum* and *G. amatymbicum*). The latter is allied to *G. bussei* in south central and tropical east Africa, *G. ossirwaense*, to an as yet undescribed species from Ethiopia and, ultimately, to the *Galium verum* alliance in Europe and Asia. In an article dealing with the evolution of the African and Madagascan *Galium* species (in preparation), these two contrasting groups of *Galium* Cape species will be discussed in detail.

To accommodate *G. rourkei* in the key to the southern African species of *Galium* (Puff, 1978: 220), the beginning of the key needs to be altered as follows:

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[1] When this species was described (Puff, 1978: 244), only the type specimen was known. In the meantime, the following additional collections have been brought to my attention:

CAPE—3420 (Bredasdorp): De Hoop near Tierhoek, (-AD), 30 m, *Burgers 2133* (STE), *v. d. Merwe 2001* (STE); farm Windhoek, *v. d. Merwe 2059* (STE); –, Fonteinkloof on W side of De Hoop vlei, 120 m, *Burgers 1251* (STE).

These collections, furthermore, confirm my original assumption that the species may be confined to limestone areas. The listed specimens were gathered in cracks and holes in limestone.

1. Leaves 3-nerved, strictly in whorls of 4 .... 1. **G. thunbergianum**
Leaves 1-nerved, in whorls of 4–10 .... 1a
1A. Leaves in whorls of 4–5 (rarely 6), 5–7 × (2)2,5–5 mm, oblanceolate to spathulate .... 10A. **G. rourkei**
Leaves in whorls of 6–10, much larger or, if small, ± ovate-lanceolate or linear-lanceolate 2
2. Synflorescences 2

References

Puff, C., 1978. The genus *Galium* L. (Rubiaceae) in southern Africa. *Jl S. Afr. Bot.* **44**: 203–279.